David T. Chen

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Experience

Senior Computer Scientist, Management Systems Designers **2000-present**

Performing research in computer graphics, medical visualization, volume visualization and image processing in the Office of High Performance Computing and Communications at the National Library of Medicine.

Research Assistant Professor, University of Houston **1997-2000**

Performing research in computer graphics, medical visualization and virtual environments at the Virtual Environments Technology Laboratory.

Research Assistant, University of North Carolina **1988-1995**

Aug. 1995 - Dec. 1995
Taught Comp 136 (computer graphics).
Jan. 1992 - Aug. 1994
Research Asst. under Henry Fuchs on the Ultrasound Project. Worked on an augmented reality system to show live ultrasound data within a pregnant patient.
Jan. 1991 - Dec. 1991
TA for Comp 236 (graduate computer graphics) and Comp 4 (intro. to computers).
Aug. 1990 - May 1991
Research Asst. under James Coggins on the NASA / Visualization Project. Worked on visualization of jets in the centers of active galaxies.
Aug. 1988 - May 1990
Research Asst. under Frederick P. Brooks on the GRIP Project. Worked on renderer for molecular visualization system.

Intern, Silicon Graphics **summer 1991**

Intern in the Visualization group under Craig Upson. Wrote modules for Iris Explorer, including the color map editor and an irregular grid iso-surfacing module.

Intern, Sun Microsystems **summer 1990**

Intern for the North Carolina graphics group under Nick England, Gary Bishop and Mark Monger. Wrote physically based modeling simulation and ray-traced radiosity demo for Sun VX / MVX graphics processor.

Education

University of California, Berkeley
B.A. in Computer Science & Astronomy 1988

University of North Carolina, Chapel Hill
M.S. in Computer Science 1991
Ph.D. in Computer Science 1998

Publications

- Lowekamp, B., M. Olano, **D. Chen**, P. Rheingans, T. Yoo, “A Programmable Layered Architecture With Artistic Rendering,” in preparation.
- **Chen., D**, B. Morse, B. Lowekamp, T. Yoo, “Hierarchically Partitioned Implicit Surfaces for Interpolating Large Point Set Models,” to appear in *Geometric Modeling and Processing*, 2006.
- Yoo, T., J. Morris, **D. Chen**, A. Richardson, “Template Guided Intervention: Interactive Visualization and Design for Medical Fused Deposition Models,” *Interactive Medical Image Visualization and Analysis Workshop*, MICCAI, 2001.
- Morse, B., T. Yoo, P. Rheingans, **D. Chen**, K. Subramanian, “Interpolating Implicit Surfaces From Scattered Surface Data Using Compactly Supported Radial Basis Functions," *Proceedings of the International Conference on Shape Modeling and Applications*, 2001.
- Kakadiaris, I., **D. Chen**, M. Miller, R. Loftin, C. Patrick, "Simulation-based determination of breast tissue engineering design patterns," *Third Biennial Tissue Engineering Society International Meeting*, 2000.
- **Chen, D.**, I. Kakadiaris, M. Miller, R. Loftin, C. Patrick, "Modeling for Plastic and Reconstructive Breast Surgery," *Proceedings of MICCAI*, 2000.
- Lin, C., R. Loftin, I. Kakadiaris, **D. Chen**, S.Su, "Interaction with Medical Volume Data on a Projection Workbench," *Proc. of 10th International Conference on Artificial Reality and Telexistence*, 2000.
- Su, S., R. Loftin, **D. Chen**, Y. Fang, Ch. Lin, "Distributed Collaborative Virtual Environment: PaulingWorld," *Proc. of 10th International Conference on Artificial Reality and Telexistence*, 2000.
- Loftin, R., C. Harding, **D. Chen**, C. Lin, C. Chuter, M. Acosta, A. Ugray, P. Gordon, K. Nesbitt, “Advanced Visualization Techniques in the Geosciences,” Proc. of the Nineteenth Annual Research Conference of the Gulf Coast Section Society of Economic Paleontologists and Mineralogists Foundation, 1999.
- Loftin, R., C. Harding, **D. Chen**, C. Lin, C. Chuter, M. Acosta, A. Ugray, P. Gordon, K. Nesbitt, “Immersive Data Visualization in the Geosciences,” *Proc. of the 1999 Immersive Projection Technologies Workshop*, 1999.
- Pizer, S., A. Thall, **D. Chen** and T. Whitted, "M-Reps: A New Object Representation for Graphics," *UNC CS Tech Report TR99-030*, 1999.
- **Chen, D.**, S. Pizer and T. Whitted, "Using Multiscale Medial Models to Guide Volume Rendering," UNC CS Tech Report TR99-014, 1999.
- **Chen, D.**, *Volume Rendering Guided by Multiscale Medial Models*, Ph.D. dissertation, Department of Computer Science, University of North Carolina at Chapel Hill, 1998.
- **Chen, D.**, S. Pizer and A. State, "Volume Rendering Guided by Multiscale Medial Models", *UNC CS Tech Report TR97-002*, 1997.
- State, A., G. Hirota, **D. Chen**, W. Garrett and M. Livingston, " Superior Augmented Reality Registration by Integrating Landmark Tracking and Magnetic Tracking," *Proc. of SIGGRAPH* 1996.
- State, A. J. McAllister, U. Neumann, H. Chen, T. Cullip, **D. Chen** and H. Fuchs, "Interactive Volume Visualization on a Heterogeneous Message-Passing Multicomputer," *Proc. of the 1995 ACM Symposium on Interactive 3D Graphics*, 1995.
- **Chen, D.**, A. State and D. Banks, "Interactive Shape Metamorphosis," *Proceedings of the 1995 ACM Symposium on Interactive 3D Graphics*, 1995.
- State, A., **D. Chen**, C. Tector, A. Brandt, H. Chen, R. Ohbuchi, M. Bajura and H. Fuchs, "Case Study: Observing a Volume Rendered Fetus within a Pregnant Patient," *Proceedings of IEEE Visualization '94*.
- Yoo, T. and **D. Chen**, "Interactive 3D Medical Visualization: A Parallel Approach to Surface Rendering 3D Medical Data," *Proceedings of S/CAR '94*.
- Whitaker, R. and **D. Chen**, "Embedded Active Surfaces for Volume Visualization," *Proceedings SPIE Medical Imaging 94: Image Processing*, v. 2167, 1994.
- Pizer, S., S. Murthy and **D. Chen**, "Core-based Boundary Claiming." *Proceedings SPIE Medical Imaging 94: Image Processing*, v. 2167, 1994.
- Watanabe, H. and **D. Chen**, "Evaluation of Fuzzy Instructions in a RISC Processor." *Proceedings 2nd IEEE International Conference on Fuzzy Systems*, March 1993.
- Ohbuchi R., **D. Chen** and H. Fuchs, "Incremental Volume Reconstruction and Rendering for 3D Ultrasound Imaging," *Proceedings of Visualization in Biomedical Computing 1992*.

Research Interests

Computer graphics including implicit surfaces, non-photorealistic rendering, virtual and augmented environments, volume rendering and haptics.

3-d bioinformatics including medical visualization, computer assisted surgery, image processing and image segmentation.

Software development including C/C++, Java, Perl, Mac OS X and Linux.

Professional Activity

Paper reviewer: ACM SIGGRAPH conference, IEEE Visualization conference

Organizer: "Workshop on Virtual Reality in the Geosciences", IEEE Virtual Reality (VR) '99, Houston, Texas, March 1999.